

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

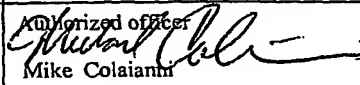
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference 78305.111028	<b>FOR FURTHER ACTION</b>		See Form PCT/IPEA/416
International application No. PCT/US04/32322	International filing date (day/month/year) 01 October 2004 (01.10.2004)	Priority date (day/month/year) 01 October 2003 (01.10.2003)	
International Patent Classification (IPC) or national classification and IPC IPC(7): B29C 53/56, 53/62 and US Cl.: 264/151, 288, 292, 294, 295			
Applicant NATVAR HOLDING, INC.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of ___ sheets, as follows:</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p style="margin-left: 40px;"><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 27 July 2005 (27.07.2005)		Date of completion of this report 14 December 2005 (14.12.2005)	
Name and mailing address of the IPEA/ US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450		Authorized officer  Mike Colaianni	
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Form PCT/IPEA/409 (cover sheet)(April 2005)

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/32322

## Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

- ☒ the international application as originally filed/furnished
- ☒ the description:
- pages 1-12 as originally filed/furnished
- pages\* NONE received by this Authority on \_\_\_\_\_
- pages\* NONE received by this Authority on \_\_\_\_\_
- ☒ the claims:
- pages 12-16 as originally filed/furnished
- pages\* NONE as amended (together with any statement) under Article 19
- pages\* NONE received by this Authority on \_\_\_\_\_
- pages\* NONE received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- pages 1/6-6/6 as originally filed/furnished
- pages\* NONE received by this Authority on \_\_\_\_\_
- pages\* NONE received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

*\* If item 4 applies, some or all of those sheets may be marked "superseded."*

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/US04/32322**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims <u>1-14</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>13</u>	YES
	Claims <u>1-12,14</u>	NO
Industrial Applicability (IA)	Claims <u>1-14</u>	YES
	Claims <u>NONE</u>	NO

**2. Citations and Explanations (Rule 70.7)**  
Please See Continuation Sheet

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

**V. 2. Citations and Explanations:**

Claims 1-2, 4-7, and 10 lack an inventive step under PCT Article 33(3) as being obvious over Moncrieff (U.S. Patent 2,740,987), in view of Evalt (U.S. Patent 2,432,870). Regarding Claim 1, Moncrieff shows that it is known to carry out a method for continuously producing preselected lengths of coiled plastic tubing (Column 1, lines 15-17), said method comprising the steps of providing a main tube shaft having a longitudinal axis (Column 29-35); rotating said main tube shaft about said longitudinal axis (Column 1, lines 29-35); providing plastic tubing to be coiled about the main tube shaft (Column 1, lines 18-22); winding said plastic tubing onto said rotating main tube shaft at an oblique angle relative thereto from a first point on said main tube shaft to produce a coil of said plastic tubing of gradually increasing length along said main tube shaft (Column 1, lines 29-48); heating said coiled plastic tubing at a second point downstream from said first point to soften said coiled plastic tubing (Column 3, lines 2-5); and cooling said coiled plastic tubing at a third point downstream from said second point to set said plastic tubing in a coiled form (Column 3, lines 5-7). Moncrieff does not show a cutting step. Evalt shows that it is known to carry out a method of producing lengths of coiled tubing, including cutting said coiled plastic tubing at a fourth point downstream from a third point at preselected intervals to obtain said preselected lengths of coiled plastic tubing (Column 2, lines 1-9). Evalt and Moncrieff are combinable because they are concerned with a similar technical field, namely, methods of making coiled plastic tubing. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to add Evalt's cutting step to Moncrieff's molding process in order to obtain coiled lengths smaller than the entire molded length.

Regarding Claim 2, Moncrieff shows the process per the discussion of Claim 1 above, including a method wherein said rotating step is continuous and occurs at speeds in a range from 1 rpm to 1000 rpm (Column 3, lines 54-55), meeting applicant's claim.

Regarding Claim 4, Moncrieff shows the process per the discussion of Claim 1 above, including a method wherein said cooling step comprises directing cooler-than-ambient air onto the previously heated coiled tubing (Column 3, lines 5-7), meeting applicant's claim.

Regarding Claim 5, Moncrieff shows that it is known to have an apparatus for continuously forming coiled plastic tubing in preselected lengths (Column 1, lines 15-17), said coiling system comprising a main tube shaft for forming plastic tubing into a helix, said main tube shaft having a longitudinal axis (Figure 1, element 10); a motor, said motor being attached to one end of said main tube shaft, said motor being for rotating said main tube shaft about said longitudinal axis (Column 2, lines 29-31); a tube guide at a first point on said main tube shaft, said tube guide having a gap through which said plastic tubing is directed, said gap making an oblique angle with respect to said main tube shaft so that said plastic tubing may be wound onto said main tube shaft in a helical form (Figure 1; Column 1, lines 18-49); a heat source at a second point on said main tube shaft, said second point being downstream from said first point, said heat source being adapted to heat coiled plastic tubing at said second point (Figure 1, element 37); a cooling apparatus at a third point on said main tube shaft, said second point being downstream from said second point, said cooling apparatus being adapted to cool coiled plastic

## Supplemental Box

tubing at said second point to set aside said plastic tubing into a coiled form (Column 3, lines 5-7). Moncrieff does not show a cutter. Evalt shows that it is known to have an apparatus for producing lengths of coiled tubing, including a cutter at a point on said main tube shaft, said fourth point being downstream from a third point, said cutter being adapted to cut coiled plastic tubing into preselected lengths by operating at preselected intervals of time (Column 2, lines 1-9). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to add Evalt's cutter to Moncrieff's molding apparatus in order to obtain coiled lengths smaller than the entire molded length.

Regarding Claim 6, Moncrieff shows the apparatus per the discussion of Claim 5 above, including an apparatus wherein said main tube shaft tapers from one diameter to a smaller diameter along at least a portion of its length (Figure 1, element 10), meeting applicant's claim.

Regarding Claim 7, Moncrieff shows the apparatus per the discussion of Claim 5 above, including an apparatus wherein said motor rotates said main tube shaft at speeds in a range from 1 rpm to 1000 rpm (Column 3, lines 54-55), meeting applicant's claim.

Regarding Claim 10, Moncrieff shows the apparatus per the discussion of Claim 5 above, including an apparatus wherein said cooling apparatus is a cool-air source (Column 3, lines 5-7), meeting applicant's claim.

Claims 3 and 9 lack an inventive step under PCT Article 33(3) as being obvious over Moncrieff and Evalt, further in view of Doell (U.S. Patent 2,392,842).

Regarding Claim 3, Moncrieff shows the process per the discussion of Claim 1 above, including a method wherein said heating step heats said coiled tubing to a temperature of 100°C (Column 3, lines 51-53). He does not show heating the coiled tubing to the range of 400-700°F. However, Doell shows that it is known that varying the temperature would be an obvious design choice (Column 4, lines 13-14). Doell and Moncrieff are combinable because they are concerned with a similar technical field, namely, methods of making coiled tubing. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to vary Moncrieff's and Evalt's operating temperature in accordance with Doell's teachings in order to accommodate a vast variety of molding resins and end-products.

Regarding Claim 9, Moncrieff shows the apparatus per the discussion of Claim 5 above, including an apparatus wherein said heating source heats said coiled tubing to a temperature of 100°C (Column 3, lines 51-53). He does not show heating the coiled tubing to the range of 400-700°F. However, Doell shows that it is known that varying the temperature would be an obvious design choice (Column 4, lines 13-14). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to vary Moncrieff's and Evalt's heat source operating temperature in accordance with Doell's teachings in order to accommodate a vast variety of molding resins and end-products.

Claims 8 and 11 lack an inventive step under PCT Article 33(3) as being obvious over Moncrieff and Evalt, further in view of Howell, Jr. (U.S. Patent 3,184,795).

Regarding Claim 8, Moncrieff shows the apparatus per the discussion of Claim 5 above, but he does not show a specific heat gun. Howell, Jr. shows that it is known to have an apparatus wherein the heat source is a heat gun (Column 6, lines 25-33). Howell, Jr. and Moncrieff are combinable because they are concerned with a similar technical field, namely, apparatuses for making coiled tubing. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Howell, Jr.'s heat gun as the heat source in Moncrieff's and Evalt's molding apparatus in order to use a most efficient heating source.

Regarding Claim 11, Moncrieff shows the apparatus per the discussion of Claim 5 above, but he does not show using a specific cooling apparatus. Howell, Jr. shows that it is known to have an apparatus wherein said cool-air source has a vortex cooling tube (Column 6, lines 37-41). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Howell, Jr.'s vortex cooling tube as the cooling means in Moncrieff's and Evalt's molding apparatus in order to use a most efficient cooling source.

Claims 12 and 14 lack an inventive step under PCT Article 33(3) as being obvious over Moncrieff and Evalt, further in view of Dijkman, Sr. et al. (U.S. Patent 5,167,891).

Regarding Claim 12, Moncrieff shows the apparatus per the discussion of Claim 5 above, but he does not show a specific cutter arrangement. Dijkman et al., hereafter "Dijkman," show that it is known to have an apparatus wherein said cutter includes a blade, said blade being adapted to cut said plastic tubing against said main tube shaft (Column 3, lines 40-45; Column 4, lines 47-60). Dijkman and Moncrieff are combinable because they are concerned with a similar technical field, namely, molding apparatuses for making coiled tubing. It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Dijkman's cutter arrangement in Moncrieff's and Evalt's molding apparatus in order to be able to make cuts in the appropriate places of the tubing.

Regarding Claim 14, Moncrieff shows the apparatus per the discussion of Claim 5 above, but he does not show using an adjustable cutter. Dijkman shows that it is known to use two cutting elements, and it would have been obvious to one of ordinary skill in the art to make one element adjustable based on the specific application (In re Stevens, 101 USPQ 284). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to adjust Dijkman's cutting elements for use in Moncrieff's and Evalt's molding apparatus in order to accommodate a wide variety of products.

Claim 13 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest a carousel for collecting preselected lengths of coiled plastic tubing cut by a cutter, said carousel having a plurality of shafts, each of said shafts being aligned with said main tube shaft as said carousel is rotated stepwise at preselected intervals and collecting a preselected length of coiled plastic tubing.

Claims 1-12 and 14 meet the criteria set out in PCT Article 33(2), because the prior art does not teach or fairly suggest all the

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**Supplemental Box**

elements of claim 1 in a single reference.

Claims 1-14 meet the criteria set out in PCT Article 33(4), and thus meet industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----